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Blood Vessel Hamartias In The Chicken

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Cannibalism in the chicken is frequently initiated by the presence of bleeding blood vessel hamartias in the skin. These defects in the growth of blood vessels are very common in the chicken. It is a heritable disease of the White Leghorn chicken. Since all of the major families of White Leghorns have originated from the same basic stock, all have this heritable defect. At times the anomaly becomes a problem in certain families of birds.

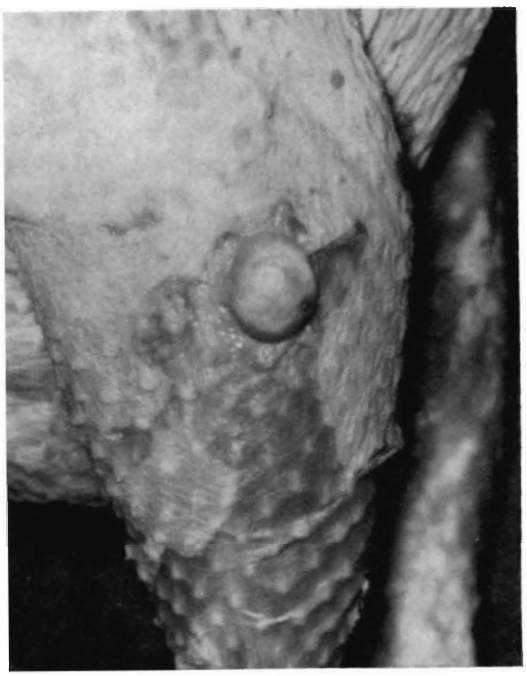

Fig. 1. Cutaneous hamartia

Fig. 2. Hamartias under scales

The presence of the abnormality in a flock is recognized by blood soiled feathers, fatal cutaneous hemorrhage or an outbreak of cannibalism. Frequently the hemorrhage is attributed to injury or cannibalism and the basic disturbance in development is not recognized. At other times the presence of these growths in the skin is first observed when the birds are submitted for postmortem examination or when they are plucked during the process of slaughter for food.

The number of hamartias in the skin

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varies greatly with the individual. At times only one new growth is observed but as many as twenty have been found in the skin of some birds. Cutaneous hamartias occur in the skin (Fig. 1), in feather follicles or under the scales of the shanks (Fig. 2). They vary in size from just visible reddish-blue patches to rounded bulging purple protrusions that measure as much as 3 cm. in diameter. As the hamartias increase in size, they project above the surrounding skin surface and become increasingly more susceptible to mechanical injury. Massive hemorrhage occurs when the skin is broken and the walls of the capillaries and cavernous spaces are ruptured (Fig. 3). Repeated hemorrhage

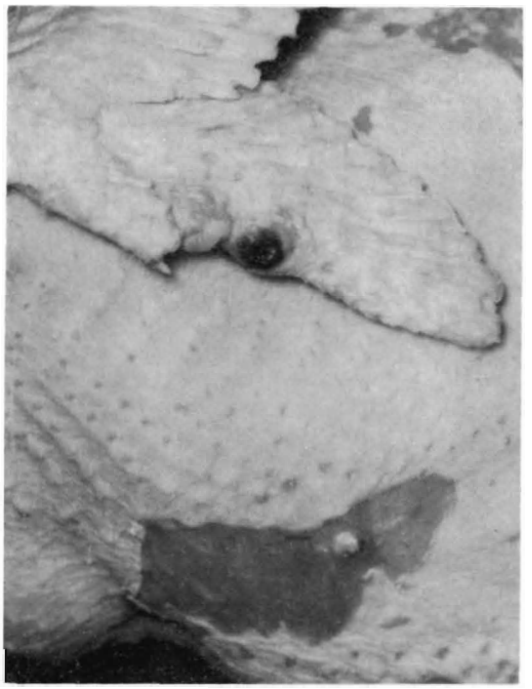

Fig. 3. Repeated hemorrhage may lead to feather picking and death.

from the same site is frequent, often leading to death of the bird. The tendency of the birds to pick blood-soiled areas favors the recurrence of hemorrhage.

Occasionally, blood vascular hamartias are found in the internal organs. Since the location of these growths in the internal organs are not found along the usual routes of metastasis, it is emphasized that these are not true malignant tumors and that hamartias are a disturbance in the development of blood vessels at the site where they are found. The liver is the most common location of the visceral growths (Fig. 4). Rupture of blood

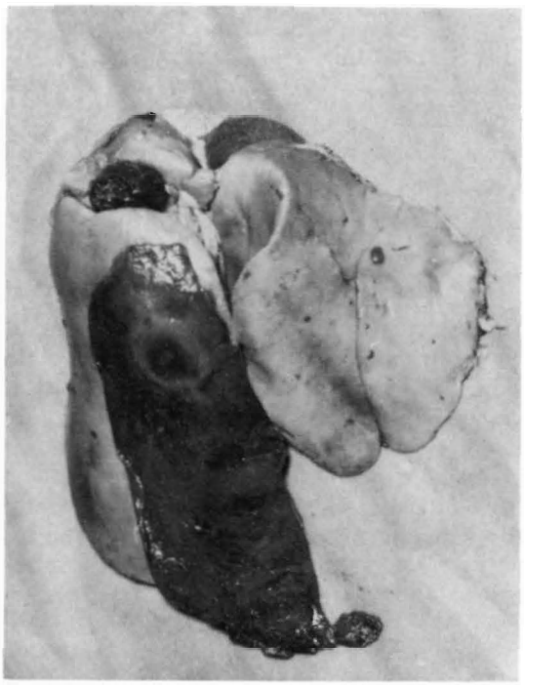

Fig. 4. Visceral hamartias

vessels in the visceral hamartias may occur resulting in hemorrhage, anemia and even death. Fatal hemorrhage, with hemoperitoneum, is the most common result of the hepatic lesions.

Histological examination of the cutaneous and visceral hamartias reveals that they consist of small capillary nests, large masses of interlacing capillaries or cavernous vascular sinuses. At times masses of endothelial cells forming no vascular lumens will be observed. A sudden increase in the size of the new growths is an indication that a blood vessel has ruptured and hemorrhage into the mass with the formation of a hematocyst has occurred.

Experimental blood vascular hamartias have also been observed in the duck. Rigdon has been able to produce hamartias in the skin of ducks by the application of irritating chemicals derived from coal tar.